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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,328	10/15/2001	Jean-Louis Gerstenmayer	214807US2PCT	5285

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

SUNG, CHRISTINE

ART UNIT PAPER NUMBER

2878

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,328

Applicant(s)

GERSTENMAYER, JEAN-LOUIS

Examiner

Christine Sung

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 26 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 15 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. A substitute specification excluding the claims is required pursuant to 37 CFR 1.125(a) because the specification contains numerous grammatical mistakes.

A substitute specification filed under 37 CFR 1.125(a) must only contain subject matter from the original specification and any previously entered amendment under 37 CFR 1.121. If the substitute specification contains additional subject matter not of record, the substitute specification must be filed under 37 CFR 1.125(b) and must be accompanied by: 1) a statement that the substitute specification contains no new matter; and 2) a marked-up copy showing the amendments to be made via the substitute specification relative to the specification at the time the substitute specification is filed.

Information Disclosure Statement

2. The Perez Mendez et al. reference cited in the IDS was not considered because it did not supply a publication date, nor was one provided on the reference.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to the process of manufacturing the detector. The examiner assumes that the "layer" includes half-tracks and half semiconducting material, and sheets stacked on top of each other.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson (US Patent 4,937,453) in view of Parker (US Patent 5,889,313).

Regarding claims 12 and 20, Nelson discloses a two-dimensional detector (Figure 1 and 3) comprising: a stack of sheets of a first material (semiconductor material, element 10) configured to emit electrons by interaction with the incident radiation (Column 2, lines 32-44), layers of semiconducting material that may be ionized, each of the layers being associated with one of the sheets, the stack having opposite first and second faces (Figure 1) each including corresponding edges of the sheets and layers, where the radiation arrives on the first face, a length of each sheet measured from the first face as far as the second face being constructed such that the thickness of

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the detector along the direction of the incident rays is long enough that substantially all the x-ray energy is discharged in the detector (see abstract); and groups of parallel and electrically conducting tracks or strips (element 12) extending from the first face to the second (see figure 1), each strip being designed to collect charge carriers that are generated in the layers (see abstract and column 4, lines 32-44), and the carriers being representative of the intensity and position of the incident radiation (Column 2, lines 66-68). Although Nelson does not explicitly state that the layers and the sheets are in different layers, it is obvious that the configuration could be divided such that elements 12 and 14 could constitute what is defined as the "layer" and the portion of element 10 not in the same plane as elements 12 and 14 could constitute what is defined in the claims as the "sheet." It would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the detection layer into "sheets" and "layers", since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 169 USPQ 177, 179. Further Nelson does not explicitly state the length of the parallel tracks or strips, but does note that the length of the detector matters and that the length should be long enough such that all the x-ray energy is discharged in the detector. As such, it would have been an obvious design choice to make the length of the detector 1/10 of the free average path of the first particles, since it would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1995) Further, Nelson does not disclose a means for creating an electric field capable of causing collection of charge carriers through the strips. Since it is well known in the art, as it is disclosed by Parker, to use an electrode to create an electric field that promotes rapid collection of released electrons or

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holes (see abstract), it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used an electrode to enhance the speed of the collection of the electrons/holes or whatever particle is being collected in order to promote the rapid and accurate completion of data measurement.

Regarding claim 13 and 15, Nelson discloses using a semiconducting material as the first material, which does conduct under the right situations, and insulates during other conditions, thus creating a means for an electric field between the strips and the semiconducting material to cause the collection of charge carriers through the strips (Column 4, lines 17-26). Although Nelson does not specifically disclose the use of an electrically conducting material or an insulated strip, his invention effectively collects the charge carrier through the strips. It would have been obvious to one having ordinary skill in the art at the time invention was made to use an electrically conducting material instead of a semiconducting material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F 2d 197, 125 USPQ 416 (CCPA 1960).

Regarding claim 14, Nelson discloses that the strip or track is located within the layer with which it is associated (see figure 3).

Regarding claim 16, Nelson discloses that adjacent sheets may be insulated (Column 5, lines 56-57) thereby creating a means for an electric field thereby inducing a voltage to cause the collection of charge carriers through the strips.

Regarding claim 17, Nelson discloses that the semiconducting layer is made of crystalline silicon (Column 3, lines 57-59).

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Regarding claim 18, Nelson discloses electrical connections (element 18) that are provided from the strips to an amplifier 20, wherein the amplifier is composed of a CCD (charge coupled device) that stores charge before readout. Although Nelson does not explicitly disclose an electronic device configured to readout the signals, it is inherent that such a device is necessary to carry out the readout of the signals.

Regarding claim 19, Nelson discloses electrical connections or pads (element 18) that are connected to the strips or tracks to collect the charge carriers from the strips or tracks, but do not specifically disclose that the end of the curved tracks or strips be curved. It would only have been a matter of design choice to have used the tracks because the functionality of the device remains the same and because the applicant has not disclosed that having this particular design solves any stated problems or is for any particular purpose; that the pads or electrodes connected to the tracks or strips, read out the signals accumulated by the tracks.

Regarding claim 21, the thickness of the individual layers and sheets is only a matter of choosing the optimum thickness because the thickness of the semiconducting material or metal strip can be tailored to whatever situation necessary. It would have been obvious to one having ordinary skill in the art the time the invention was made to make the thickness of the corresponding layers or sheets as claimed since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 22, Nelson discloses the claimed invention except that he does not specify using half layers consisting of tracks and semiconducting material sandwiched between 2 sheets. It would have been obvious to one having ordinary skill in the art at the time the

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invention was made to process the detector in the abovementioned configuration, since it has been held that a mere reversal or rearrangement of essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


a. US Patent 5434,417- This reference discloses an apparatus and method for detection x-rays using a semiconductor strip detector.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 703-305-0382. The examiner can normally be reached on Monday- Friday 7-4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-0956 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

CS
May 30, 2003


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER (800)

JAN 15 2002

SHEET 1 OF 1

Form PTO 1449
(Multiple)DEPARTMENT OF COMMERCE
PATENT & TRADEMARK OFFICEATTY DOCKET NO.
214807US2PCTSERIAL NO.
09/926,328

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Jean-Louis GERSTENMAYER

FILING DATE
October 15, 2001GROUP
2878

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
C.S.	AA	5,117,114	05/26/92	R. A. STREET, et al.			
C.S.	AB	4,210,805	07/01/80	T. KOBAYASHI, et al.			
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES	NO
	AN					
	AO					
	AP					
	AC					
	AF					
	AS					
	AT					
	AU					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

C.S.	AV	A. P. JEAYONS, et al., Nuclear Instruments and Methods, Vol. 124, No. 2, pps. 491-503, "THE HIGH-DENSITY MULTIWIREDRIFT CHAMBER", March 1, 1975
	AW	V. PEREZ-MENDEZ, et al., pps. 45-50, "RECENT DEVELOPMENTS IN DELAY LINE READOUT OF MULTIWIRED PROPORTIONAL CHAMBERS"
C.S.	AX	S. N. KAPLAN, et al., Nuclear Instruments and Method, Vol. 105, pps. 397-406, "MULTIWIRED PROPORTIONAL CHAMBERS FOR BIOMEDICAL APPLICATION", 1973
C.S.	AY	J. L. GERSTENMAYER, et al., SPIE Vol. 2550, pps. 107-114, "MULTI-STEP PARALLEL-PLATE AVALANCHE CHAMBER AS A 2D IMAGER FOR MEV PULSED RADIOGRAPHY", 1996
C.S.	AZ	J. L. GERSTENMAYER, Nuclear Instruments and Methods in Physics Research, pps. 147-150, "HIGH-DUE PERFORMANCE AND GAMMA-RAY FAST IMAGERS: EMERGENT CONCEPTS", May 11, 1998

Examiner

Date Consented

5/20/03

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